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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/808,796	03/15/2001	Karl Beeson	30-3818 DIV-2 (4370)	6658

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John G. Shudy, Jr. Esq.
Honeywell International Inc.
Law Department
P.O. Box 2245
Morristown, NJ 07962-2245

EXAMINER

LUK, EMMANUEL S

ART UNIT PAPER NUMBER

1722

DATE MAILED: 04/17/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/808,796	BEESON ET AL.	
	Examiner	Art Unit	
	Emmanuel S. Luk	1722	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 27 December 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 22-33,35-38,42 and 57-67 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 22-33,35-38,42,57-63 and 65-67 is/are allowed.
- 6) ☒ Claim(s) 64 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. Claim 64 is rejected under 35 U.S.C. 103(a) as being unpatentable over Takahashi et al in view of Savant.

Takahashi teaches a transparent plate (1), such as a glass plate (col. 15, lines 27), a liquid photosensitive resin composition is placed on the substrate (Col. 15, lines 31), a transparent substrate (5) is placed, and a light source (7) is applied to cure a portion of the resin (Col. 16, lines 15-22), the uncured portion is removed via nozzle washing or brush washing using a wash-out solution (Col. 16, lines 28-31). Takahashi also teaches types of resins that can be used including oligomers, monomers, polymers (Col. 4 to Col. 14), and photoinitiators (Col. 3, line 20).

The glass plate is also the amorphous inorganic substrate that the resin rests upon.

Savant teaches a submaster (10) that can be made of metal that can be brought into contact with the resin layer (30) for transferring the surface topography. The fill material is the index matching fluid (50) that can be at least partially transmissive, it can be acrylic based epoxy for purpose of providing clarity, and can be a mixture of two or more components. The index of refraction being more than that of the photopolymerizable material is a result-effect variable that can be determined through experimentation. In regards to the shape of surface being smooth bumps between 1-20 μm , Savant teaches the shape of the surface topography is composed of isosceles triangular prisms with a depth between 0.2 μm to 200 μm . It would have been obvious

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to one of ordinary skill in the art to modify Savant to merely change the shape to allow for smooth bumps in the surface instead of the triangular prisms formed.

It would have been obvious to one of ordinary skill in the art to modify Takahashi with a surface as taught by Savant because it allows for the desired shape and depth on the surface of the resin layer.

Allowable Subject Matter

2. Claims 22-33, 35-38, 42, 57-63, 65-37 are allowed.
3. The following is an examiner's statement of reasons for allowance: The prior art fails to teach the apparatus for manufacturing a light diffusing structure comprising of the transparent or translucent substrate, the photopolymerizable layer, the means for directing the light, and the array of tapered optical waveguides between the substrate and the means for directing light. The closest prior art references fails to teach the waveguides and the other reference that does teach a waveguide is not used for manufacturing a light diffusing structure.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Response to Arguments

4. Applicant's arguments, see the amendment, filed 12/27/05, with respect to the office action rejection have been fully considered and are persuasive. The rejection of claims 22-33, 35-38, 42 and 57-67 has been withdrawn.

In regards to claim 64, a new rejection has been made without Rendulic since an array of waveguides is not claimed and the claimed invention is merely claiming a succession of layers of one type of material or another with texture on the surface of the photopolymerized portion. There is no further claimed structural limitation and both Takahashi and Jarsen are pertinent references. Jarsen is also pertinent since it is for preparing a mold, it is intended use as to the product and the bumps are surface variations that can be modified as per design choice. Jarsen does teach surface structures that are on the micron scale and is particularly of relevance for one of ordinary skill in the art.

Conclusion

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Emmanuel S. Luk whose telephone number is (571) 272-1134. The examiner can normally be reached on Monday-Thursday 8 to 5 and alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Yogendra N. Gupta can be reached on (571) 272-1316. The fax phone

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number for the organization where this application or proceeding is assigned is (571) 273-8300.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (571) 272-0987.

EL

Joseph S. Del Sole
JOSEPH S. DEL SOLE
PRIMARY EXAMINER
4/13/06